

KILLING TWO BIRDS WITH 1 STONE: EMOLED, THE BLUE RAY SHINE OF HOPE

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INTRODUCTION

Venous leg ulcer is a condition whereby there is an open skin condition at the leg or foot in an area where it is affected by venous hypertension. Most patients with venous leg ulcer exhibits symptoms of ulcer located near the gaiter's region, edematous leg, stasis dermatitis, lipodermatosclerosis and varicosities of veins. Treating venous ulcer can be of any methods. Surgical management includes either treating the perforator veins, stripping of saphenous veins and surgical skin grafting. However, not all cases beneficial for surgical intervention; therefore they only had options of secondary wound healing. Even though secondary wound healing takes longer time for proper closure in venous leg ulcer, with correct treatment and therapy, healing can still be shortened if we understand the fundamental of wound healing stages, materials used for wound dressing, appropriate adjunct therapy and compression therapy.

In this case study, patients with non complicated venous leg ulcer were chosen and these patients are equally treated with same basic dressing technique, with usage of Antimicrobial Hydrophilic Polyurethane Foam Matrix (RTD), Bio-cellulose wound healing acceleration gel (Nanogen Aktigel) added up with adjunct treatment of LED Photobiomodulation laser therapy (EmoLED) and conventional 4 layer compression bandaging.

CASE REPORT

CASE A

44 years old Malay gentleman, with underlying Hepatitis B, ex IVDU and an active smoker, presented to wound clinic with a history of non healing venous leg ulcer for 6 years. Patient claimed despite of regular compliance towards usage of wound dressing, reduction of cigarettes and frequent visits to clinic, his venous ulcer still showed no improvement, hence was referred to wound clinic. Initial picture as attached below. Upon first review, the leg was edematous contralaterally, no signs of infection, no macerated wound edges as he changed the dressing twice a day, wound located at gaiter's region with ABSI of 0.8. Patient was not referred to vascular surgeon as he was not keen for operative intervention. Wound dressing was performed twice a week and until it heals.

CASE B

49 years old Indian lady, with underlying schizophrenia under psychiatric follow up and compliance to treatment, was referred to wound unit by surgical team in view of non healing chronic venous leg ulcer. Patient had been having the same ulcer since the past 8 years and was not on compression therapy. Was told by her sister that patient herself had issues with compliance of wearing bandages. Upon first review, wound was the size of 4cm x 3cm, no signs of local infection. Minimal macerated edges with shallow undermining, Peri wound skin was dry with slight hyperkeratosis of skin. Affected leg was minimally swollen as compared to the other side. Dressing was performed as intended and compression therapy still applied despite of minimal swollen leg in appearance. Skin dryness was treated with glycerin based emollient.

METHODOLOGY

Patient wound cleansed using hypochlorite solution prior to usage of adjunct therapy of EmoLED. Then added on Nanogen Aktigel and RTD foam. Initially, superabsorbent material were used to control wound exudates for the first 2 weeks, then were

not applied anymore as secondary dressing not soaked. Lastly conventional 4 layer compression bandaging was applied. Patient subjected for wound dressing twice a week until healed/shows marked percentage of wound bed reduction.

RESULTS

- CASE A showed improvement in terms of wound bed features whereby more granulation tissues presence and no more depth of wound and undermining after 6 weeks of treatment. After 10 weeks of treatment, more epithelised tissues seen and forming a bridge connecting between two margins. Leg swelling reduced and wound exudates well controlled. Peri wound skin clean.
- CASE B showed wound healed within 4 weeks of treatment. Upon initial review, wound bed was clean with suspected biofilm covering the wound around 50%. Wound edge clean, not macerated and peri wound skin was dry. After 4 weeks of treatment with frequency of twice a week dressing, the wound healed completely as patient strictly compliance to compression bandaging as well, peri wound skin hydrated.

DISCUSSION

As we all know, chronic wound usually stuck at inflammatory phase which is the second stage of healing. However with the correct modality of dressing materials used and strict compliance to compression bandaging, wound will eventually heals in time. However, adjunct treatment by using Photobiomodulation therapy helps to speed up even further in terms of tissue repair. EmoLED carries the function as not just to lift the wound from the second stage of healing, it also helps to speed up the third stage of wound healing, thus killing 2 birds with 1 stone.

Why so? This is because EmoLED helps in production of pro-inflammatory agents with the increase of Reactive Oxygen Species (ROS) and helps in promoting macrophages from pro inflammatory to pro-healing which all happens during the second stage of healing. However, with the continuation of shine, it also promotes a faster transition to stage 3 and hence earlier transition to stage 4 as compared to no EmoLED shine. Proliferative stage of wound healing characterized by triad of migration of fibroblast, collagen synthesis and angiogenesis. EmoLED enhances it all! It will control the activity of fibroblast cells, which will enhance and initiate process of collagen synthesis and increase in ROS that will contribute to angiogenesis. Which all happening at third stage of wound healing.

CONCLUSION

As a conclusion, why should we aim for treating only at 1 phase instead of 2 phases with these blue shine of hope? Let EmoLED helps you entangles the burden of wound healing phase while you shine it away.

REFERENCES

1. Thomas F O'Donnell Jr, Marc A. Passman, William A. Marston et al. Management of Venous Leg Ulcers - Clinical Practice Guidelines of The Society For Vascular Surgery and The America Venous Forum. SVS/AVF Joint Clinical Practice Guidelines Committee- Venous Leg Ulcer.
2. International Consolidated Venous Ulcer Guidelines (ICVUG) 2015
3. T Velinar, T Bailey and V Smrkolj. The Wound Healing Process: An Overview of the Cellular and Molecular Mechanism. The Journal of International Medical Research. 2009 ; 37 : 1528-1542
4. <http://emoled.com/en/mechanism-of-action>
5. Rossi F et al, Photobiomodulation of Human Fibroblasts and Keratinocytes with Blue Light : Implications in Wound Healing Biomedicines 2021, 9, 41 : doi.org/10.3390/biomedicines9010041

CASE A



Time of review	Wound size
First review	11.8cm (L) X 6cm (W) X 1cm (D)



After 6 weeks of treatment	11cm (L) x 4cm (W)
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After 10 weeks of treatment	10cm (L) x 2.5cm (W)
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CASE B



Time of review	Wound size
First review	4cm (L) x 3cm (W)



After 4 weeks of treatment	Healed
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